AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Paul Shirley et al.

Title: SPINDLE CHUCK CLEANER

Docket No.: 303.774US2
Filed: February 13, 2004
Examiner: Bibi Sharidan Carrillo

Serial No.: 10/777,957
Due Date: February 5, 2006 (SUNDAY)
Group Art Unit: 1746

MS Appeal Brief - Patents
Commissioner for Patents
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SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
(GENERAL)

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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PATENT

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In re Application of: Paul Shirley et al. Examiner: Bibi S. Carrillo

Serial No.: 10/777,957 Group Art Unit: 1746

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For: SPINDLE CHUCK CLEANER

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P.O. Box 1450
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Sir:

The Appeal Brief is presented in support of the Notice of Appeal to the Board of Patent Appeals and Interferences, received on December 5, 2005, from the Final Rejection of claims 33-42 and 55-62 of the above-identified application, as set forth in the Final Office Action mailed on June 2, 2005.

The Commissioner of Patents and Trademarks is hereby authorized to charge Deposit Account No. 19-0743 in the amount of 500.00 which represents the requisite fee set forth in 37 C.F.R. § 41.2(b)(2). The Appellants respectfully request consideration and reversal of the Examiner's rejections of pending claims.

1. REAL PARTY IN INTEREST

The real party in interest of the above-captioned patent application is the assignee, MICRON TECHNOLOGY, INC..

2. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellant that will have a bearing on the Board's decision in the present appeal. A PRE-APPEAL BRIEF REQUEST FOR REVIEW was filed on December 2, 2005. In a telephone interview on February 2, 2006, the Examiner indicated that the PRE-APPEAL BRIEF REQUEST FOR REVIEW had been considered and that the appeal was going to the Board of Appeals. The NOTICE OF PANEL DECISION FROM PRE-APPEAL BRIEF REVIEW, dated February 3, 2006, is attached to the Related Proceedings Appendix.

3. STATUS OF THE CLAIMS

The present application was filed on February 12, 2004, with claims 1-100. A Restriction Requirement was mailed on August 26, 2004. A non-final Office Action and Restriction Requirement was mailed and December 23, 2004. A Final Office Action (hereinafter "the Final Office Action") was mailed June 2, 2005. Claims 33-42, 55-62 and 69-82 remain pending, and is the subject of the present Appeal.

4. STATUS OF AMENDMENTS

No amendments have been made subsequent to the Final Office Action dated June 2, 2005.

5. SUMMARY OF CLAIMED SUBJECT MATTER

Some aspects of the present inventive subject matter include, but are not limited to, methods for cleaning a support. An embodiment of the present invention includes methods for cleaning a support, such as a chuck or wafer holder. An embodiment of the method includes moving the cleaning surface of a cleaning head into contact with the support and removing contaminants from the support. The contaminants from the support are removed by vacuuming the contaminants through the cleaning head assembly Figures 5 and 6 show two embodiments of apparatus that perform the method of cleaning the support. Figure 5 shows an arm 506 that includes fluid pathways 511 connected at one end thereof to a vacuum source 512. The pathways 511 extend through the arm 506 and open at ports 514 in a face of the cleaning head assembly 508. The cleaning head assembly 508 includes, in an embodiment, a base 521 that has the pathways 511 and ports 514 extending therein. The vacuum source 512 through pathways 511 and ports 514 removes contaminants or particles from the volume adjacent the face of the support, such as the chuck 305.

Figure 6 shows an embodiment similar to Figure 5. However, the Figure 6 embodiment does not have a brush mounted on the cleaning assembly 508. In an embodiment, the assembly 508 is moved closely adjacent the chuck 305. Contaminants, e.g., particles, are vacuumed off the chuck surface by the vacuum source 512 through the ports 514 and pathways 511.

One embodiment of the method includes removing a wafer from the support adapted to releasably hold a wafer, and, thereafter, moving the cleaning surface into contact with the support. The embodiment also includes removing contaminants from the support adapted to releasably hold a wafer by vacuuming the contaminants through the cleaning surface.

The embodiments of the invention operate in a clean environment in which it is necessary to control contaminates, which may come into contact with wafers and circuits. Potential contaminants include particles, metals, organic molecules and the like.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1.) Was a proper *prima facie* case of obviousness under 35 U.S.C. § 103(a) made with respect to claims 34-39 and 55-62 in the rejection based on Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577)?

2.) Was a proper *prima facie* case of obviousness under 35 U.S.C. § 103(a) made with respect to claims 40-41 in the rejection based on Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577), as applied to claims 33-39 and 55-62, and further in view of Su et al. (U.S. Patent No. 5,507,874)?

3.) Was a proper *prima facie* case of obviousness under 35 U.S.C. § 103(a) made with respect to claim 42 in the rejection based on Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577), as applied to claims 33-39 and 55-62, and further in view of Satterfield et al. (U.S. Patent No. 5,364,144)?

7. ARGUMENT

1.) The Applicable Law for Rejections Under 35 U.S.C. § 103

According to *M.P.E.P.* § 2141, which cites *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986), the following tenets of patent law must be adhered to when applying 35 U.S.C. § 103. First, the claimed invention must be considered as a whole. Second, the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination. Third, the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention. Fourth, obviousness is determined using a reasonable expectation of success standard. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. *M.P.E.P.* § 2141 (citing *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966)).

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d, 488, 20 USPQ2d 1438 (Fed. Cir. 1991)).

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Appellant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). The references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. *M.P.E.P.* § 2142 (citing *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App.

& Inter. 1985)). In considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. *M.P.E.P.* § 2144.01 (citing *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)). However, if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *M.P.E.P.* § 2143.01 (citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

In order to take into account the inferences which one skilled in the art would reasonably make, the examiner must ascertain what would have been obvious to one of ordinary skill in the art at the time the invention was made, and not to the inventor, a judge, a layman, those skilled in remote arts, or to geniuses in the art at hand. *M.P.E.P.* § 2141.03 (citing *Environmental Designs, Ltd. v. Union Oil Co*, 713 F.2d 693, 218 USPQ 865 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984)).

> The examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

M.P.E.P. § 2141.03.

2) Discussion of the rejection of claims 34-39 and 55-62 under 35 U.S.C. § 103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577).

The rejection of each of the claims 34-39 and 55-62 is improper since the Examiner fails to make a proper prima facie case of obviousness. Appellant argues that the rejection of each of these claims is improper since the Kipp reference fails to teach or suggest all the claim limitations. In the alternative, Appellant argues that the rejection under 35 U.S.C. § 103, citing the single reference issued to Kipp, is improper since it fails to make out a proper *prima facia* case of obviousness. One of the requirements of a prima facie case of obviousness is that the prior art reference must teach or suggest all the claim limitations. The Kipp reference fails to teach many of the recited elements, as admitted by the Examiner in the various Office Actions.

Claim 33 recites "...moving the cleaning surface into contact with the support adapted to releasably hold a wafer; and removing contaminants from the support by vacuuming the contaminants through the cleaning head assembly." As pointed out in the response of October 28, 2005, the Shuji reference removes contaminants from the support or spin chuck in the opposite way. The spin chuck cleaning device of the Shuji reference removes contaminants by jetting them off. In other words, contaminants are removed by literally blowing them off the spindle chuck or support with a "jet port jetting acetone and N_2 gas" (see lines 4 and 5 of the Solution portion of the Abstract of the Shuiji reference).

One of ordinary skill in the art of cleaning a chuck or head for holding the wafers in a clean environment would not look to a reference (Shuji) that would introduce a reactive organic compound, namely acetone, into the clean environment. Furthermore, one of ordinary skill in the art of cleaning a chuck or head for holding the wafers in a clean environment would not look to a reference that potentially introduces particles into the clean environment. The spin chuck cleaning device of the Shuji reference removes contaminants by jetting them off using a jet port jetting acetone and N_2 gas. Using Shuiji would introduce reactive acetone into a clean environment as well as the particles from the cleaning chuck.

Even if one was disposed to look to the Shuiji reference, modifying the Shuiji reference with the Madea et al. reference, as suggested by the Examiner, would destroy the Shuiji reference. No matter how the Shuji reference is modified with the Madea et al. reference, the Shuji reference is destroyed. If the vacuum device of Madea et al. is

substituted for the jet ports of Shuji, the Shuji reference is destroyed (see responses, sections B, D and E of the Response dated October 28, 2005). Modifying the Shuiji reference in this fashion would destroy one of the main purposes or functions of the Shuiji reference, namely to clean the spin chuck by jetting the spin chuck with acetone and N_2 gas. Simply put, the purpose of the Shuiji device would be destroyed if modified with the Madea et al. as suggested by the Office Action. In addition to destroying the purpose of the Shuiji reference, there would be no reasonable expectation of success since pulling a vacuum through the jet ports of Shuiji also would not work. Jet ports are small. Pulling a vacuum through the jet ports of Shuiji would result in a very small vacuum force. Contaminant particles could plug the small jet ports.

In the advisory action of November 10, 2005, the Examiner suggested another modification. The Examiner suggested adding the Madea et al. vacuum to the jet ports of Shuji. In such an arrangement, the vacuum of Madea et al. will work against the jet ports of Shuji thereby compromising the cleaning ability of the device. In other words, adding the vacuum device of Madea et al. to supplement the jet port of Shuji compromises the jetting action used to clean the spindle chuck thereby destroying the Shuji reference. In one instance, the Madea et al. vacuum will remove some of the acetone and N_2 gas thereby compromising the jetting action of the acetone and N_2 gas. If somehow the Madea et al. vacuum can be arranged so that none of the fluids passing from the jet port are removed by the Madea et al. vacuum, the pressure differential used to jet off the spindle will be reduced thereby reducing the effectiveness of the jet ports.

As a result, a proper *prima facie* case of obviousness is not made since no matter how these two references are combined, the Shuji reference is destroyed. This destruction of the purpose of the reference is evidence against a reason to modify or combine the references. In addition there is no reasonable expectation of success since the combination would either not work, or the effectiveness for cleaning would be compromised since the vacuum would work against the jet ports and vice versa. In addition, the introduction of acetone (a reactive organic molecule) and particles into the clean environment also lessens any reasonable expectation of success. If the vacuum of

Madea et al. is to be used without the jet ports of Shuji, then the jet ports of Shuji have been rendered ineffective, thus destroying the Shuji reference.

In addition, the Madea et al. reference teaches removing contaminants from an entirely different portion of the semiconductor fabrication apparatus. Madea et al. does not even teach or suggest removing contaminants from the support or spindle chuck but, rather, teaches cleaning of the gas manifold for placing gas into the chamber during a chemical vapor deposition process. Therefore, it is doubtful one of ordinary skill in the art of cleaning a chuck or head for holding the wafers would look to a reference that cleaned an entirely different portion of a semiconductor fabrication apparatus.

As a result, the Office Action failed to set forth a proper *prima facie* case of obviousness with respect to claim 33 since there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. In fact, combining the teachings as suggested by the Examiner would destroy the purpose of the Shuiji reference. This destruction of the purpose of the reference is evidence against a reason to modify or combine the references. In addition there is no reasonable expectation of success since the combination would not work, for the reasons described above. In addition, using the Shuiji reference will introduce contaminant particles and reactive organic molecules into the clean environment.

Claims 34-39 depend from claim 33 and include the recitations of claim 33 by their dependency. As a result, claims 34-39 now also overcome the rejection under 35 U.S.C. § 103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577) since the Examiner has failed to set forth a proper *prima facie* case of obviousness.

Claim 55 recites "...removing contaminants from the support adapted to releasably hold a wafer by vacuuming the contaminants through the cleaning surface." Applicant cannot find these features in Shuiji. In fact, the Shuiji reference teaches exactly the opposite since contaminants are removed from the support by the "jetting of acetone...and jetting of N_2 gas..." (See penultimate line of the Abstract of Shuji) through

the cleaning head assembly. The "...cleaning head part 51 includes "...a jet port jetting acetone and N_2 gas..." (See line 4 of the second paragraph of the Abstract of Shuji).

One of ordinary skill in the art of cleaning a chuck or head for holding the wafers in a clean environment would not look to a reference (Shuji) that would introduce a reactive organic compound, namely acetone, into the clean environment. Furthermore, one of ordinary skill in the art of cleaning a chuck or head for holding the wafers in a clean environment would not look to a reference that potentially introduces particles into the clean environment. The spin chuck cleaning device of the Shuji reference removes contaminants by jetting them off using a jet port jetting acetone and N_2 gas. Using Shuiji would introduce reactive acetone into a clean environment as well as the particles from the cleaning chuck.

Even if one was disposed to look to the Shuiji reference, modifying the Shuiji reference with the Madea et al. reference, as suggested by the Examiner, would destroy the Shuiji reference. No matter how the Shuji reference is modified with the Madea et al. reference, the Shuji reference is destroyed. If the vacuum device of Madea et al. is substituted for the jet ports of Shuji, the Shuji reference is destroyed (see responses, sections B, D and E of the Response dated October 28, 2005). Modifying the Shuiji reference in this fashion would destroy one of the main purposes or functions of the Shuiji reference, namely to clean the spin chuck by jetting the spin chuck with acetone and N_2 gas. Simply put, the purpose of the Shuiji device would be destroyed if modified with the Madea et al. as suggested by the Examiner. In addition to destroying the purpose of the Shuiji reference, there would be no reasonable expectation of success since pulling a vacuum through the jet ports of Shuiji also would not work. Jet ports are small. Pulling a vacuum through the jet ports of Shuiji would result in a very small vacuum force. Contaminant particles could plug the small jet ports.

In the advisory action of November 10, 2005, the Examiner suggested another modification. The Examiner suggested adding the Madea et al. vacuum to the jet ports of Shuji. In such an arrangement, the vacuum of Madea et al. will work against the jet ports of Shuji thereby compromising the cleaning ability of the device. In other words, adding the vacuum device of Madea et al. to supplement the jet port of Shuji compromises the

jetting action used to clean the spindle chuck thereby destroying the Shuji reference. In one instance, the Madea et al. vacuum will remove some of the acetone and N_2 gas thereby compromising the jetting action of the acetone and N_2 gas. If somehow the Madea et al. vacuum can be arranged so that none of the fluids passing from the jet port are removed by the Madea et al. vacuum, the pressure differential used to jet off the spindle will be reduced thereby reducing the effectiveness of the jet ports.

As a result, a proper *prima facie* case of obviousness is not made since no matter how these two references are combined, the Shuji reference is destroyed. This destruction of the purpose of the reference is evidence against a reason to modify or combine the references. In addition there is no reasonable expectation of success since the combination would either not work, or the effectiveness for cleaning would be compromised since the vacuum would work against the jet ports and vice versa. In addition, the introduction of acetone (a reactive organic molecule) and particles into the clean environment also lessens any reasonable expectation of success. If the vacuum of Madea et al. is to be used without the jet ports of Shuji, then the jet ports of Shuji have been rendered ineffective, thus destroying the Shuji reference.

In addition, the Madea et al. reference teaches removing contaminants from an entirely different portion of the semiconductor fabrication apparatus. Madea et al. does not even teach or suggest removing contaminants from the support or spindle chuck but, rather, teaches cleaning of the gas manifold for placing gas into the chamber during a chemical vapor deposition process. Therefore, it is doubtful one of ordinary skill in the art of cleaning a chuck or head for holding the wafers would look to a reference that cleaned an entirely different portion of a semiconductor fabrication apparatus.

As a result, the Examiner failed to set forth a proper *prima facie* case of obviousness with respect to claim 55 since there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. In fact, combining the teachings as suggested by the Examiner would destroy the purpose of the Shuiji reference. This destruction of the purpose of the reference is evidence against a reason to modify or combine the references. In addition there is no reasonable expectation of

success since the combination would not work, for the reasons described above. In addition, using the Shuiji reference will introduce contaminant particles and reactive organic molecules into the clean environment.

Claims 56-62 depend from claim 55 and include the recitations of claim 55 by their dependency. As a result, claims 56-62 now also overcome the rejection under 35 U.S.C. § 103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577).

In summary, neither the Office Action dated June 2, 2005 or the Advisory Action dated November 10, 2005, set forth a proper *prima facie* case of obviousness with respect to the claims since there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. In fact, combining the teachings would destroy the purpose of the Shuiji reference. This destruction of the purpose of the reference is evidence against a reason to modify or combine the references. In addition there is no reasonable expectation of success since the combination would not work, for the reasons described above. Moreover, the Office Action appears to have used the Appellants' disclosure as a road map for the combination. As a result, the claims now overcome the rejection under 35 U.S.C. § 103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577). Appellant submits that the Examiner's rejections are now overcome.

4) Discussion of the rejection of claim 42 under 35 U.S.C. § 103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577), as applied to claims 33-39 and 55-62, and further in view of Su et al. (U.S. Patent No. 5,507,874).

Claims 40-41 depend from claim 33 and are believed to be allowable since one of ordinary skill in cleaning a support in a clean environment would not look to a device that would introduce particles and organic contaminants into the clean environment. Furthermore, even if one of ordinary skill was to combine Shuiji with Maeda et al., the

combination would destroy Shuiji. As discussed above, there is no reason for the combining these references as evidenced by the destruction of the Shuiji reference. In addition, the introduction of the particles and the organic contaminants into the clean environment lessens or removes any expectation of success. Adding the Su reference fails to cure the flaws associated the combination of Shuiji and Maeda et al. The fact that Su et al. teaches a specific cleaning material does not cure the shortcomings resulting from combining the Shuiji and the Maeda et al. references. Simply put, Su does not cure the defect resulting from combining the Shuiji reference and the Maeda et al. reference as discussed above under the discussion under ***2)***. As a result, the Examiner has also failed to make out a proper *prima facie* case of obviousness with respect to claims 40-41. Claims 41-41 are not obvious over the combination of Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577), as applied to claims 33-39 and 55-62, and further in view of Su et al. (U.S. Patent No. 5,507,874).

4) Discussion of the rejection of claims 34-39 and 55-62 under 35 U.S.C. § 103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577)), as applied to claims 33-39 and 55-62, and further in view of Satterfield et al. (U.S. Patent No. 5,364,144).

Claim 42 depends from claim 33 and are believed to be allowable since one of ordinary skill in cleaning a support in a clean environment would not look to a device that would introduce particles and organic contaminants into the clean environment. Furthermore, even if one of ordinary skill was to combine Shuiji with Maeda et al., the combination would destroy Shuiji. As discussed above, there is no reason for the combining these references as evidenced by the destruction of the Shuiji reference. In addition, the introduction of the particles and the organic contaminants into the clean environment lessens or removes any expection of success. Adding the Satterfield reference fails to cure the flaws associated the combination of Shuiji and Maeda et al. The fact that Satterfield et al. teaches a specific cleaning material does not cure the shortcomings resulting from combining the Shuiji and the Maeda et al. references.

Simply put, Satterfield does not cure the defect resulting from combining the Shuiji reference and the Maeda et al. reference as discussed above under the discussion under ***2)***. As a result, the Examiner has also failed to make out a proper *prima facie* case of obviousness with respect to claim 42. Claims 42 is not obvious over the combination of Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577), as applied to claims 33-39 and 55-62, and further in view of Satterfield et al. (U.S. Patent No. 5,364,144).

8. SUMMARY

For the reasons argued above, claims 33-42 and 55-62 were not properly rejected under § 103(a).

It is respectfully submitted that the Examiner failed to make out a proper *prima facie* case of obviousness with the art cited, and, that the art cited does not render the claims obvious. Appellant respectfully submits that the claims are patentable over the cited art. It is also respectfully submitted Reversal of the rejection and allowance of the pending claim are respectfully requested.

Respectfully submitted,

PAUL SHIRLEY et al.

By their Representatives,

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Date February 6, 2006 By Richard E. Billion
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KATE GANNON
Name

Signature

CLAIMS APPENDIX

1-32. (Canceled)

33. (Rejected) A method for cleaning a support adapted to releasably hold a wafer, comprising:

providing a cleaning surface of a cleaning head assembly;

moving the cleaning surface into contact with the support adapted to releasably hold a wafer; and

removing contaminants from the support by vacuuming the contaminants through the cleaning head assembly.

34. (Rejected) The method of 33, wherein moving the cleaning surface into contact with the support includes moving the cleaning surface into vertical alignment with the support.

35. (Rejected) The method of claim 33, wherein moving the cleaning surface into contact with the support includes moving the cleaning surface into coaxial alignment with the support.

36. (Rejected) The method of claim 33, wherein moving the cleaning surface into contact with the support includes moving the cleaning surface downwardly onto the support.

37. (Rejected) The method of claim 33, wherein the support has wafer supporting upper surface.

38. (Rejected) The method of claim 37, wherein the wafer supporting upper surface is a metal surface.

39. (Rejected) The method of claim 37, wherein the wafer supporting upper surface is a steel surface.

40. (Rejected) The method of claim 37, wherein the cleaning surface is a plastic.

41. (Rejected) The method of claim 37, wherein the cleaning surface includes polytetrafluoroethylene.

42. (Rejected) The method of claim 37, wherein the cleaning surface is homopolymer acetal.

43-54. (Canceled)

55. (Rejected) A method for cleaning a support adapted to releasably hold a wafer, comprising:

providing a cleaning surface;

removing a wafer from the support adapted to releasably hold a wafer;

thereafter, moving the cleaning surface into contact with the support; and

removing contaminants from the support adapted to releasably hold a wafer by vacuuming the contaminants through the cleaning surface.

56. (Rejected) The method of 55, wherein moving the cleaning surface into contact with the support includes moving the cleaning surface into vertical alignment with the support.

57. (Rejected) The method of 56, wherein moving the cleaning surface into contact with the support includes moving the cleaning surface downwardly onto the support.

58. (Rejected) The method of claim 55, wherein removing contaminants from the support includes rotating the cleaning surface on the support.

59. (Rejected) The method of claim 55, wherein removing contaminants from the support includes rotating the support on the cleaning surface.

60. (Rejected) The method of claim 55, wherein removing contaminants from the support includes activating a vacuum source.

61. (Rejected) The method of claim 60, wherein activating a vacuum source includes activating a vacuum source when the cleaning surface contacts the support.

62. (Rejected) The method of claim 60, wherein activating a vacuum source includes activating a vacuum source when the support contacts the cleaning surface.

63-68. (Canceled)

69. (Withdrawn) Machine executable code stored on machine readable media, wherein the code comprises:

providing a cleaning surface;

moving the cleaning surface into contact with a wafer support; and

removing contaminants from the wafer support by vacuuming the contaminants through the cleaning head assembly.

70. (Withdrawn) The code of 69, wherein moving the cleaning surface into contact with the support includes moving the cleaning surface into vertical alignment with the support.

71. (Withdrawn) The code of 70, wherein moving the cleaning surface into contact with the support includes moving the cleaning surface downwardly onto the support.

72. (Withdrawn) The code of claim 69, wherein removing contaminants from the support includes rotating the cleaning surface on the support.

73. (Withdrawn) The code of claim 69, wherein removing contaminants from the support includes rotating the support on the cleaning surface.

74. (Withdrawn) The code of claim 69, wherein removing contaminants from the support includes activating a vacuum source.

75. (Withdrawn) The code of claim 69, wherein the activating a vacuum source includes activating a vacuum source when the support contacts the cleaning surface.

76. (Withdrawn) The code of claim 69, wherein the activating a vacuum source includes activating a vacuum source when the cleaning surface contacts the support.

77. (Withdrawn) The code of claim 69, wherein the activating a vacuum source includes generating a vacuum when the cleaning surface is a set distance from the head.

78. (Withdrawn) The code of claim 77, wherein the set distance is about 0.2 microns.

79. (Withdrawn) The code of claim 77, wherein the set distance is less then about 0.2 microns.

80. (Withdrawn) The code of claim 69, wherein the activating a vacuum source includes generating a vacuum when the cleaning surface is vertically aligned with the support.

81. (Withdrawn) The code of claim 69, wherein moving the cleaning surface into contact with the support is delayed until after removing a wafer from the support.

82. (Withdrawn) The code of claim 74, wherein the delay is at least 5 seconds.

83-100. (Canceled)

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

Notice of Panel Decision form Pre-Appeal Brief Review is attached.